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FIT Clinical Decision Making

ELECTROCARDIOGRAPHIC MANIFESTATION OF PROFOUND HYPERCALCEMIA

Poster Contributions
Hall C
Sunday, March 30, 2014, 3:45 p.m.-4:30 p.m.

Session Title: FIT Clinical Decision Making: Interventional Cardiology and Acute Coronary Syndrome
Abstract Category: Standard ECG, Stress Testing
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Background: Hypercalcemic crisis is a rare manifestation of primary hyperparathyroidism caused by parathyroid adenoma. The musculoskeletal, gastrointestinal, neurologic and cardiovascular systems can be severely affected. This case dramatically illustrates the classic electrocardiographic findings caused by severe hypercalcemia.

Case Description: The patient is a 29 year-old African American man with no previous known medical history who was brought to the emergency department for evaluation of progressive fever, abdominal pain, vomiting and lethargy, occurring over the five days prior to admission. Cardiology was consulted shortly after triage for concern for acute inferolateral myocardial injury pattern on electrocardiogram. However, the electrocardiogram showed a dramatically shortened QT interval with an absent ST segment, most consistent with profound hypercalcemia. The initial serum calcium level was severely elevated at 29.5 mg/dL, with a serum parathyroid hormone level of 7,475 pg/mL. He was also noted to have acute kidney injury and rhabdomyolysis. His hospital course was complicated by hypotension upon starting hemodialysis, hypoxemic respiratory failure requiring intubation and mechanical ventilation, and ultimately cardiac arrest. Autopsy revealed a 3 cm parathyroid adenoma, confirming the primary diagnosis of parathyroid crisis.

Conclusion: Hypercalcemic crisis is a rare manifestation of primary hyperparathyroidism, particularly as the initial presentation. This case illustrates the dramatic electrocardiographic findings of marked hypercalcemia. The lack of an isoelectric ST segment can mimic the injury pattern caused by acute coronary artery occlusion. For this reason, differentiating between the two patterns can be challenging, and early recognition of this clinical scenario is critical.